

p. 113, *B. euphrosyne* ab. *rusalka*, Fruhst.; var. *densoi*, Fruhst.; *B. daphne* var. *nikator*, Fruhst.; *Heodes virgaureae* ab. *osthelderi*, Fruhst.; p. 120, ab. *alexandrae* (♀), Fruhst.; *Loweia alciphron* ab. *isokrates*, Fruhst.; ab. *romanorum*, Fruhst.; var. *gaudeolus*, Fruhst.; *Chrysophanus hippothoë* ab. *eisalpina*, Fruhst.; *Epinephela lycaon* ab. *salona*, Fruhst.; ab. *nikokles*, Fruhst.; ap. *macrophthalma*, Fruhst.; p. 121, ae. *ephisius*, Fruhst.; *E. jurtina* ab. *phormia*, Fruhst.; *Aphantopus hyperanthus* var. *rufilius*, Fruhst.; p. 130, *Satyrus briseis* ab. *bataia*, Fruhst.; ab. *turatii*, Fruhst.; p. 133, *Pararge maera* ab. *atabyris*, Fruhst.; ab. *ordona*, Fruhst.; ab. *herdonia*, Fruhst.; p. 134, var. *silymbria*, Fruhst.; *P. megaera* var. *depulverata*, Fruhst.; *P. deidamia* ab. *interrupta*, Fruhst.; var. *thyvia*, Fruhst.; *Aranda (Pararge) schrenckii* ab. *menalcas*, Fruhst.; *Erebia adyte* ab. *syrmia*, Fruhst.; ab. *etobyma*, Fruhst.

### Myrmecophilous Notes for 1909.

By H. St. J. K. DONISTHORPE, F.Z.S., F.E.S.

(Continued from p. 259.)

COLEOPTERA.—ATEMELES PARADOXUS, Gr.—Some six specimens were dug up out of nests of *F. rufibarbis* var. *fusco-rufibarbis* at Whitsand Bay, Rame Head, and Tregantle, in April, by my friend, Mr. Keys, and myself. The beetle was very scarce, and all the specimens were found deep in the nests, very many nests being dug up to obtain these few specimens.

DINARDA PYGMAEA, Wasm.—This species occurred as usual in these nests, and we had a most striking illustration of how this beetle is confined to nests of *F. rufibarbis* var. *fusco-rufibarbis*. All the nests at Whitsand Bay belong to this species, on the other side of Rame Head more nests are true *F. fusca*, and in the Meavy Valley all the nests but one were found to be those of *F. fusca*. In this one nest of *F. rufibarbis* var. *fusco-rufibarbis*, we found *Dinarda pygmaea*, but never in the *F. fusca* nests.

ATEMELES MARGINATUS was found with *F. fusca* in the latter locality. *F. fusca* is a cowardly and shy ant; when a nest is disturbed they all vanish, this is not the case with *F.* var. *fusco-rufibarbis*. Mr. Hamm sent me a *F. fusca* nest from Shotover, near Oxford, on July 12th, containing some eggs, ♀s and pupæ. In it I found two larvæ of *Atemeles emarginatus*. These were carried about by the ants, as they did their own pupæ, and fed. On July 15th, one of them was placed on the bunch of eggs. I eventually put them into spirit, as I was using the nest for experiments with *F. sanguinea*, ♀s.

LOMECHUSA STRUMOSA, F.—On May 10th, I noticed a *Lomechusa* in a small nest of *F. sanguinea*, from Woking, laying eggs on the ants' eggs in the nest.

DINARDA DENTATA, Gr.—Occurred as usual with *F. sanguinea* at Woking, and, in plenty, in company with many of its larvæ, with the same ant at Bewdley. I introduced a specimen into a *F. rufibarbis* var. *fusco-rufibarbis* observation nest on July 23rd, it lived in this nest till September 14th, when I removed it and put it into my *F. evsecta* nest, where it is still alive, October 29th.

DINARDA HAGENSI, Wasm.—On April 26th, I found specimens of

this beetle in a nest of *F. exsecta* at Parkhurst Forest, Isle of Wight. This is a new locality for it, as the species has only been found at Bournemouth up to now, where I first discovered it in Britain.

*OXYPODA RECONDITA*, Kr.—Several specimens of this rare species were taken with *F. rufa* at Buddon Wood in May.

*OXYPODA VITTATA*, *MYRMEDONIA FUNESTA*, *M. COGNATA*, and *M. LATICOLLIS* were found with *L. fuliginosus* at Darenth Wood in June and September; a new locality for all.

*MYRMEDONIA LIMBATA*, Pk.—A specimen was observed at Bradgate Park, in Leicestershire, on May 3rd, to seize a larva of *Lasius flavus* and drag it out of the nest.

*XANTHOLINUS ATRATUS*, Gr.—Several specimens occurred with *F. rufa* at Buddon Wood, in May, and one was swept at Tubney, near Oxford, in June.

*CLAVIGER TESTACEUS*, Preys.—On June 1st, Mr. Forsyth sent me a nest of *Lasius flavus* from Portland, which contained some 50 specimens of *Claviger*. I put two ♀s, and a number of ♂s, egg-masses, and young larvæ into a small plaster nest, with many *Clavigers*, and frequently saw the *Clavigers* fed and licked. They ate all the young larvæ and eggs, and also pupæ of other ants I introduced. As many as five or more specimens sat on and crawled about the ♀s, especially on their abdomina, and I believe they ate the eggs as they were laid. Many of the ♂s died, and the *Clavigers* ate those too I kept introducing more ♂s and larvæ from the main nest. No *Clavigers* died, and the ♀s lived till August 30th. I took them to the Isle of Wight, but, unfortunately, on the journey home, all were killed.

*MYRMETES PICEUS*, Pk.—This species occurred in great numbers in nests of *Formica rufa* at Buddon Wood, in May; I brought a lot home, and introduced them into my different observation-nests. In a nest of *F. rufibarbis* var. *fusco-rufibarbis*, I introduced 12 specimens on May 6th. I had given these ants pupæ of *F. rufa* to eat. The *Myrmetes* bored into the pupæ and devoured the whole contents. On May 10th, I noticed a pair *in cop*. The ♂ sits far back on the dorsum of the ♀. A ♀ was observed to lick one of the *Myrmetes*.

*CETONIA FLORICOLA*, Hbs.—In May I found a number of the larvæ of this beetle in a nest of *Formica rufa*, at Nethy Bridge. I brought home some 16 specimens in a tin full of the nest materials, on which the larvæ feed. I introduced six specimens into my *F. rufa* observation-nest (these immediately bored into the nest and disappeared), some I preserved in spirit, and the rest I left in the tin. The larva does not use the legs for walking. When placed on a table, or on the floor, it turns over on its back, and moves rapidly along by means of the bristles on the back, the legs being held up in the air. The larvæ in the tin made their pupa-cases from the nest materials and pupated at the end of July, and hatched out in August. I have them alive now. Those in my nest hatched out and came up in August.

DIPTERA.—*PHYLLOMYZA FORMICÆ*, Collin.—I bred this species this year from larvæ which I found in some numbers in a nest of *Formica rufa-pratensis*, at Nethy Bridge, in May. The larvæ occurred in the chambers of the ants at the bottom of the nest. This proves that the species is not parasitic on the ants, but lives free in the nests. I put

a number of the larvæ in a tin, with mould from the bottom of the nest, and they changed to pupæ and hatched out in June.

PHYLLOMYZA sp.?—I took a number of a species with *Lasius fuliginosus*, at Darenth Wood, in July and September. Mr. Collin tells me this is the same species I took with *L. fuliginosus* on the Birkdale sand-hills, and is distinct from *P. lasiae*, Collin, which I have taken with the same ant at Oxshott, and have bred out of my observation-nest of that ant from Wellington College.

MILICHIA LUDENS, Wahl.—This fly, which is new to Britain, I took in a nest of *Lasius fuliginosus*, at Darenth Wood, on June 6th. Collin has kindly supplied me with the following information about it. It was described by Wahlberg in 1817, as *Lobioptera ludens* (*Oversigt Kongl. Vetensk. Akad.*, iv., p. 261, pl. vii., fig. 1). In 1873, Raddatz (*Archiv Vereins der Naturgesch. in Mecklenburg*, xxvii., p. 102) records that it lives with *Lasius fuliginosus*, and that he had taken it with that ant in May and June.

CERATOPOGON MYRMECOPHILUS, Egger.—Collin and I caught several ♂s flying over a nest of *Formica rufa*, at Weybridge, on July 5th, and I netted others over a nest of the same ant at Darenth Wood, on September 24th.

LIMOSINA CURTIVENTRIS, Stnh.—This species was again found with *Lasius fuliginosus*, this time at Darenth Wood, in September.

LIMOSINA sp.?—A ♂ and ♀ taken with *L. fuliginosus*, at Darenth Wood, September 26th. Collin writes of them, "A most interesting little *Limosina*, new to me; unfortunately the male is headless, but the abdomen is so remarkable I think it might safely be described." I unfortunately broke the ♂ when pinning it.

PHORA FORMICARUM, Verrall.—I have at last succeeded in taking this little species. I found it rather commonly at Bewdley Forest, in July, with *Lasius niger*, *L. flavus* and *Formica sanguinea*. The little fly hovers over the ants, flying very steadily, and getting nearer and nearer to an ant, which it strikes at. I found they would strike at ants on my hands, when I kept quite still. It was amusing to watch an ant which had become aware of the presence of the fly, make a dash for safety pursued by the fly. I subsequently took it over a *L. niger* nest, at St. Helens, in the Isle of Wight, in August. I have also seen it hovering over *L. fuliginosus* at Wellington College and Darenth Wood.

PHORA ÆQUALIS, Wood.—Taken in some numbers in a nest of *Lasius fuliginosus* at Darenth Wood, on September 24th.

PHORA sp.?—I twice captured a very small *Phora*, with long posterior legs, in the same nest as the last species. Collin writes, "Dr. Wood does not recognise it, he says it is remarkable in having a very long costa and long costal fringe."

TRINEURA ATERRIMA, F.—♂ and ♀ taken with *L. fuliginosus*, Darenth Wood, June 6th.

MICRODON DEVIUS, L.—I netted a specimen of this beautiful fly at Cothill, near Oxford, on June 30th. The larvæ should be searched for in nests of *Formica fusca*, etc.

ARANEINA.—THYREOSTHENIUS BIOVATA, Camb.—This species was found in *F. rufa* nests at Parkhurst Forest, Isle of Wight, in April, Buddon Wood, Leicestershire, and Nethy Bridge, Inverness-shire, and in plenty, ♂s and ♀s, and very young, with *F. rufa-pratensis*, at

Nethy Bridge, in May. A young ♂ was taken with *F. fusca* at Aviemore, on May 17th. This is the first time I have found it with this ant.

EVANSIA MERENS, Camb.—I took ♂s and ♀s with *F. fusca*, and ♀s with *F. sanguinea*, at Aviemore, on May 17th.

SALTICUS FORMICARIUS, De Geer.—I took this rare species again this year in the Isle of Wight, this time at Luccombe Chine, a young ♂ being captured in company with *Myrmica scabrinodis*, on August 29th.

CICURINA CINEREA, Panz.—I found a number of ♀s, young and adult, in a nest of *Lasius fuliginosus*, in October. My friend, Mr. Cambridge, writes, "I have only met with this here in old disused drains . . . . The shelter and accommodation afforded by ants' nests would probably be very congenial to this species."

DYSDERA CAMBRIDGH, Thor.—I took specimens of this spider with *F. rufibarbis* var. *fusco-rufibarbis* at Whitsand Bay, in April, and with *F. sanguinea* at Woking, in May. Van Hasselt recorded it with *Lasius brunneus*.

CRYPHÆCA RECISA, Camb.—Two ♀s were taken in nests of *F. fusca* at Bradgate Park, in Leicestershire, in May. Mr. Cambridge writes, "This is only the second record of the species, the former having occurred in Sherwood Forest several years ago, swept, I believe, from heather. The ♂ is unknown."

MICARISOMA FESTIVA, C.K.—This species was taken in April, with *L. niger*, at Whitsand Bay and Rame Head, and with *L. flavus* at Virtuous Lady Mine.

MICARIA PULICARIA, Sund.—This spider occurred with *L. niger* at Virtuous Lady Mine, and with *Tetramorium caespitum* at Whitsand Bay, in April, and in May with *Formica exsecta*, at Aviemore.

PROCTOTRUPIDÆ.—TROPIDOPRIA FULIGINOSA, Wasm., was found in nests of *F. rufa* at Buddon Wood, in Leicestershire, in May, and a var., with the same ant, at Nethy Bridge, on May 18th.

COMOSTIGMUS TESTACIPES, Kief.—This species, which is new to Britain, was taken in a nest of *Formica rufa* at Nethy Bridge, on May 18th.

LAGYNODES PALLIDUS, F.—Two specimens occurred in a nest of *F. fusca*, in Parkburst Forest, Isle of Wight, in April. When this species meets an ant it tucks in its antennæ and feigns death.

TETRAMOPRIA DONISTHORPEI, Kief., and *T. femoralis*, Kief.—Both these species, which are new to science, were discovered by me in nests of *Tetramorium caespitum* at Whitsand Bay, in April. In this genus, which was erected by Wasmann, the hairs on the neck, which are usually white in other *Proctotrupidæ*, are golden, and are licked by the hosts. They are on good terms with their hosts, and, I observed, when they met that they tapped antennæ with the ants. They are parasitic on the larvæ of the ants.

PLANOPRIA PEDESTRIS, Kieffer.—A genus and species new to science. I took several of this little creature running about in company with *Lasius niger* at Luccombe Chine, in August. They are apterous, and were rather ant-like in appearance when alive.

LOXOTROPA n. sp.?—Taken with *Lasius fuliginosus* at Darent Wood, on September 29th. Dr. Kieffer writes that he will send on name



later. *Loxotropa tritoma*, Thoms., is recorded in the nest of *Tetramorium caespitum*, "Vic. Hist. Devon," 1906, p. 187.

*GONOTOPUS DISTINCTUS*, Kief.—I swept a specimen in company with *Myrmica laevinodis*, in the New Forest, on June 18th.

(To be concluded.)

## NOTES ON LIFE-HISTORIES, LARVÆ, &c.

NOTES ON THE LARVAL HABITS OF *DRYAS PAPHIA* VAR. *VALESINA*.—In July, 1908, I obtained ova from a New Forest ♀ (♂ unknown) deposited on moss; the ♀s never deposit on their food-plant. These hatched in fourteen days, and, after eating their egg-shells, went at once into hibernation on moss, no food being supplied to them. On March 21st, 1909, I sprayed the moss with lukewarm water and placed same in the sunshine; within a couple of hours the larvæ started to move, and within three days some 80 made their appearance. These were removed to young leaves of *Viola canina*: after retiring to the underside of the leaves, and remaining dormant for six days, they started feeding vigorously, early morning and late afternoon being their favourite hours; they are also fond of the early morning sunshine. The dates for the moults were April 10th, 19th, 28th, and May 8th, pupating from May 23rd, onwards. The 77 imagines produced were:—41 typical males, 23 typical females, 13 var. *valesina*.—E. C. Joy, 2, St. Kilda's Road, Stoke Newington, N. October 18th, 1909.

NOTE ON THE LARVAL HABITS OF *BRENTHIS EUPHROSINE*.—Ova obtained from a Lincoln ♀, captured in June, 1908; these hatched in twelve days, and were placed on growing plants of *Viola canina*; after moulting twice, they settled down for hibernation, in early August. On March 21st, 1909, only 15 out of 80 larvæ had survived the winter, these appeared weak and sickly, and here the great difficulty with the larvæ arose; they refused their food; they would only wander round, basking in the sunshine; apparently they lacked strength to accomplish their moult. On April 3rd only four safely survived the moult, and these started feeding ravenously, their movements being exceedingly rapid. Except whilst feeding, they never rest on their food, retiring amongst the moss, but always in the sunshine. These moulted again on April 11th; the first, pupating on April 19th, produced an imago on May 21st.—Id.

DESCRIPTION OF EGGS OF LEPIDOPTERA.—*Metrocampa margaritaria*.—Eggs laid by a ♀ captured near Meran at the entrance of the Passier-Thal, August 10th, 1909. The eggs are laid in regular rows in clusters of 50-150. They are of typical Geometrid shape, but turned up on end, so that the rounded micropylar end is at the top of the egg. The eggs are pale green in colour when first laid, quite uniform and homogeneous, but turn to a pinky colour, speckled all over irregularly with various-sized blood-red dots. The micropylar area is free from these dots, except that one or two quite large dots are usually conspicuous in the position of the micropyle. The eggshell appears to be quite smooth under a hand lens. The peculiarity of these eggs is in their being laid as upright eggs (Described August 17th, 1909, under a hand lens).

*Thalera fimbrialis*.—♀ captured August 7th, 1909, in the Sarnthal; 6 eggs laid in a box, 2 close together almost